"There is no free lunch when it comes to meeting our energy needs," said Johanna Wald, a senior lawyer at the Natural Resources Defense Council. She added, however, that the renewables boom "offers a chance to do it right."

"We want to do it differently compared to how we did oil and gas development," she said.

There is no question that permit applications for renewable-energy projects are on the rise, especially on federal land in the West. According to Ray Brady, leader of the BLM's energy policy team, the bureau has received 199 applications for solar projects encompassing 1.7 million acres of land, though only two of them have undergone environmental assessments.

The agency has already authorized 206 wind projects -- 28 of them to generate power, the rest primarily to test a region's wind-generation capacity -- and at least 200 more are awaiting approval.

The fact that eight Western states have established "renewable portfolio standards" has accelerated the push for new projects, Brady said, because those policies are forcing utilities to find additional renewable sources of electricity.

"For all of these reasons, BLM does have a challenge because of the additional work involved," said Brady, who predicted that the agency may hire as many as 100 people just to work on renewable-energy permits. "Clearly there's an interest in expediting and streamlining the process. However, we need to make the right decisions that are based on the best science."

One of the biggest challenges renewable-energy projects pose is that they often take up much more land than conventional sources, such as coal-fired power plants. A team of scientists, several of whom work for the Nature Conservancy, has written a paper that will appear in the journal PLoS One showing that it can take 300 times as much land to produce a given amount of energy from soy biodiesel as from a nuclear power plant. Regardless of the climate policy the nation adopts, the paper predicts that by 2030, energy production will occupy an additional 79,537 square miles of land.

The impact will be "substantial," said Jimmie Powell, the Nature Conservancy's national energy leader and one of the paper's co-authors. "It's important to know where the footprint is going to be."

In some cases, scientists are just beginning to discover the unintended effect of projects such as wind turbines. Grassland birds such as the lesser prairie chicken and the greater sage grouse, both of which are candidates for listing under the Endangered Species Act, appear to avoid vertical structures such as wind turbines and transmission-line towers. This is proving to be a problem in states such as Kansas, an ideal site for wind power, because as more turbines are built, lesser prairie chickens will confine themselves to narrow ranges, fragmenting a population that must be connected to survive.

"Nobody knows what's in the bird's head, but presumably there's an inherited behavior that allows the birds to avoid avian predators who could perch overhead," said Michael Bean, wildlife director for the Environmental Defense Fund, an advocacy group.

The U.S. Fish and Wildlife Service has proposed requiring that developers keep wind turbines at least five miles away from a prairie grouse lek, or mating area, but the wind industry has resisted this idea.

Ditlev Engel, president and chief executive of the Danish wind-energy company Vestas, said anecdotal evidence about birds being caught in turbine blades and other environmental horror stories do not usually hold up under scrutiny.

B-026-001: Comment Noted (In Review)

Your email/letter/comment form has been received and your comment noted.

The Environmental Impact Statement is anticipated to be completed in late 2010 and will be available at http://www.usda.gov/rus/water/ees/ea.htm.